



# Drawing Software

**Vector drawing software can handle everything from artistic illustrations to business graphics. Adam Banks compares the top five creative options**

**M**ost of us have some kind of image-editing software, such as Paint Shop Pro, for manipulating and touching up digital photos, and it can be tempting to use this for every kind of artwork you want to produce on your PC. But you shouldn't. Paint Shop Pro is not the best program for knocking up business charts, technical diagrams and most kinds of illustration that start from a blank canvas. For projects such as these, you need a vector drawing program.

A digital image such as a photo consists of a grid containing a certain number of pixels, which means it has a fixed resolution. The larger you display or print it, the larger each pixel becomes and the more likely you are to see the pixels instead of the picture. If you draw a perfect circle in your image editor, zoom in and look at the edge, you'll see that it's not perfect at all.

Vector graphics are different. A circle in a vector program really is a perfect circle, mathematically defined. You can zoom in as much as you like or print it as large as possible, and it will stay smooth. This is because it is 'resolution independent'. What's more, as the circle is stored as a discrete object, you can move it around the screen independently of other shapes that overlap it.

You can create images using vector shapes as elements, giving each an outline and a fill. This

method is ideal for creating flowcharts, organisational charts and schematic diagrams because you can easily duplicate items, edit them and move them around. Alternatively, you can combine shapes more creatively to build up a picture. To illustrate a face, for example, you wouldn't draw a face shape, an eye shape and so on. Instead, you would draw shapes for each area of the face according to its shading: a large dark shape for a patch of shadow, for example, and a small light shape for a highlight. For subtle shading, you can 'blend' one shape into another. So after placing a small, pale shape on top of a larger, mid-toned shape to create a highlight, you would blend these two shapes. The result is a series of intermediate shapes progressing from one to the other to produce a smooth transition.

Professional illustrators laboriously create hundreds of blends to shade a drawing, but for the rest of us there are plenty of short cuts. Gradient fills create smooth colour transitions in a single shape: for example, a circle with a radial gradient fill, going from light at the centre to dark at the edge, will look like a ball. Mesh fills, which are available in an increasing number of programs, let you place several colour points in one shape and blend between them automatically. Outlines, also called strokes, can be enhanced with brush effects.

## IN THIS REVIEW

Adobe Illustrator CS2

CorelDraw Graphics Suite 12

Macromedia FreeHand MX

Serif DrawPlus 7

Xara Xtreme

For creative graphics, you can distort shapes, perhaps roughening an outline or bending a piece of text into a fancy shape. The current generation of drawing software can even apply the kinds of effects you'd associate with image editors, such as feathered edges, glows and shadows. To achieve this, sections of the artwork are converted to a bitmap image, or 'rasterised'. This happens automatically, but you need to remember that raster effects are not resolution-independent, so it's important to set the right rendering resolution for your document before you export or print it.

There are many vector-based programs specifically for computer-aided design (CAD) tasks such as engineering and architectural drawing. Another category of vector software, which includes programs such as Microsoft Visio, SmartDraw and ConceptDraw, specialises in business diagrams. In this review we're concentrating on general-purpose drawing programs aimed at graphic designers and any user whose primary aim is an attractive end result. However, some borrow features from the other types of drawing program, such as dimensioning lines, for showing measurements on plans, and smart connector lines that link objects in flow diagrams and the like and reroute themselves when the connected shapes are moved.

## WHAT YOU'LL FIND IN A DRAWING PACKAGE

**1** Vector software provides a host of drawing tools, including straight line, freehand and bezier curve tools, rectangles, ellipses and polygons. Use these to draw independent shapes (objects) and give them an outline, stroke and fill.

**2** You can arrange your objects with stacking commands (Bring to Front, Send to Back) and layers. These enable you to build up drawings that are as complex as required.

**3** You'll find various types of fill, including gradients and bitmap patterns, that you can apply to objects, whether to form graphics such as web buttons or to shade photorealistic drawings.

**4** Vector packages include a host of creative effects to make your images more interesting, such as envelope warping and distortion functions that bend or roughen the shapes of objects.

**5** With raster effects you can apply more complex styles to objects, such as soft glows and shadows, by converting areas of your vector artwork into bitmaps (images). These are updated whenever you edit them.

**6** Many packages also include basic 3D modelling functions that extrude or revolve a two-dimensional shape into a shaded three-dimensional form.



**REVIEW DRAWING SOFTWARE**

# MACROMEDIA FreeHand MX

RATING ★★☆☆

PRICE £317 inc VAT

SUPPLIER [www.dabs.com](http://www.dabs.com)DETAILS [www.macromedia.com/uk](http://www.macromedia.com/uk)

FreeHand was once Macromedia's flagship title, but it has since become a victim of the success of the company's web design programs. It was passed over in the last two rounds of upgrades and is looking a bit neglected. Now that Macromedia is merging with Adobe, it's hard to see what sort of future FreeHand can have.

Don't write it off just yet, though. FreeHand MX is a powerful drawing program that many professionals have chosen over Illustrator. That's partly because of its multi-column, multi-page desktop publishing (DTP) features, which Illustrator has now just about matched. But there's plenty more to like. Perspective Grid, for example, lets you display a traditional vanishing-point grid and drag shapes around it as if they were in a 3D space, changing the shape and size automatically according to the rules of perspective. Actual 3D modelling is limited to basic extrusions, but you can set multiple rendered objects to share the same vanishing point, which gives the feature much more practical value, even if it's only for cheesy 1970s text effects.

The user interface is similar to Illustrator's with more cluttered toolbars but neater docking palettes. Standard features such as drawing tools, graphing, warping and distortion, auto-trace and colour handling are on a par – the two programs do things differently but equally well. FreeHand's transparency and raster effects are slightly more cumbersome than Illustrator's, but it has some great vector effects such as Sketch and Ragged. While FreeHand can't compete with Illustrator's creative Brushes, it's better for business users as it has the smart connector lines that Illustrator lacks.

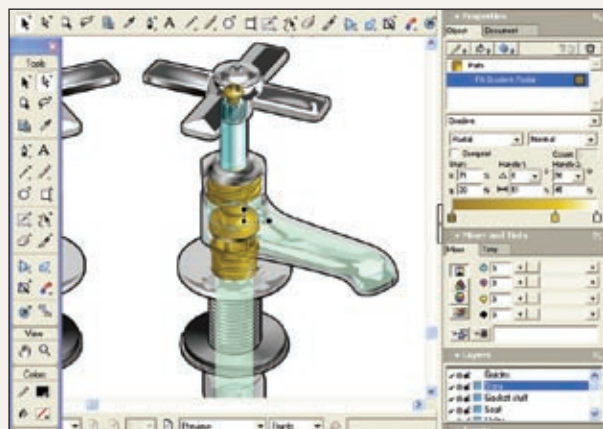
FreeHand has decent built-in support for animation and interactivity, as well as the added benefit of integrating with Macromedia's web animation program Flash. You can import Flash movies and export in Flash format, and the two applications, along with Dreamweaver, can share common assets. Inevitably, its PDF export is less advanced than Adobe's Illustrator. FreeHand also lacks scripting, which is available only in the Mac version.

Overall, FreeHand is a very competent drawing package that's no more difficult to use than the others and has more depth than most. Sadly, at this price it competes directly with CorelDraw Graphics Suite, which offers far more breadth.

✓ Solid drawing and layout features with some neat touches

✗ A bit dull and limited by today's standards

**REQUIREMENTS** Windows 98 SE/2000/XP, 600MHz Pentium III processor, 128MB RAM, 100MB disk space. **Product code** FHW1101000



FreeHand's interface is similar to Illustrator's, although the toolbars are cluttered





## REVIEW DRAWING SOFTWARE

ADOBE  
Illustrator CS2

RATING ★★★★★

PRICE £401 inc VAT

SUPPLIER [www.dabs.com](http://www.dabs.com)DETAILS [www.adobe.co.uk](http://www.adobe.co.uk)

Illustrator was the first vector drawing program and remains the choice of most professional designers. At the high end, and particularly in its Apple Mac incarnation, it competes primarily with Macromedia's FreeHand. With Macromedia currently merging with Adobe, FreeHand's future looks uncertain, so Illustrator has a clear run at the top spot. Fortunately, the latest upgrade – which in effect is version 12 but is named CS2 as part of Adobe's Creative Suite – shows no signs that Adobe is resting on its laurels.

One of several new features, Live Trace turns scanned drawings, photos and other images into vector shapes quickly and accurately. Unlike other programs, Illustrator CS2 lets you adjust the trace settings interactively, so you can see the effect they have on your artwork straight away rather than having to redo the trace by trial and error.

Complementing this, Live Paint allows you to 'colour in' line drawings in a way that was impossible with vector programs. Usually, to fill an area with colour, you need a complete shape that represents an area. For example, if you draw a noughts-and-crosses board using four lines, you can't fill the square in the middle because it

doesn't exist as an object; you'd have to draw a square on top, then fill it. With Illustrator CS2, you can click in the square formed by the lines, and the bounded area is recognised and filled. If you then move one of the lines, changing the shape and size of the bounded area, the fill updates. This is a real innovation that will change the way users work.

Illustrator has pretty much everything you'll find in other packages, and its user interface is quite accessible, although Adobe's palettes tend to get scattered around as you work. There are lots of nice touches, such as the ability to adjust the number of points on a star interactively while drawing it, and advanced features such as envelope warping, mesh fills and symbol spraying are well implemented.

A good range of distortion and raster effects can be applied individually or stacked, while Graphic Styles apply all the attributes of an object with one click. Libraries of ready-made Graphic Styles let you create effects such as gel buttons instantly, and you can access and edit the properties of each object in your drawing easily from the Appearance palette. As well as the kind of 3D extrusion most drawing packages offer, which lets you give thickness to flat shapes, Illustrator has a 3D Revolve tool, so you can 'lathe' solids such as an egg or vase from a curve. It's not as easy to use as it should be, but it's very useful once you get the hang of it. The program supports scripting with Adobe Actions.

Beyond drawing, there's built-in support for frame-based animation, including interactivity, which you can save as SVG files or export to Flash. Text handling is good enough for page layouts, and this version adds support for multiple pages. If desktop publishing is your thing, though, look at the



Illustrator is the professional's drawing package of choice and offers everything you'll ever need

complete Creative Suite 2, which comes with InDesign, Adobe's market-leading DTP program, and Photoshop. Creative Suite 2 costs less than £700 inc VAT if you shop around.

Although that's more than twice the price of Corel's Graphics Suite, the Adobe programs are in a different league and represent the professional industry standard. If design is your main focus, CS2 is the automatic choice at the moment, and one that you're unlikely to regret. On the other hand, if you just need a general-purpose drawing program, Illustrator is pricy as a standalone product, and its advantages over cheaper rivals may not be significant enough in everyday use to justify the extra cost.



Won't let you down; if you need Photoshop or InDesign, the Creative Suite is good value



Too expensive as a standalone drawing package

**REQUIREMENTS** Windows 2000 with SP3 or 4/XP with SP1 or 2, Pentium III or 4 processor, 512MB RAM, 820MB disk space.

**Product code** 26001501

## REVIEW DRAWING SOFTWARE

COREL  
CorelDraw Graphics  
Suite 12

RATING ★★★★★

PRICE £315 inc VAT

SUPPLIER [www.amazon.co.uk](http://www.amazon.co.uk)DETAILS [www.corel.co.uk](http://www.corel.co.uk)

CorelDraw is the standard against which other PC drawing programs are judged. It's available only with the Graphics Suite, which includes Photo-Paint (see *Labs*, *Shopper* April 2005) and Corel Rave 3, a motion graphics package.

In many respects, CorelDraw's feature list matches those of Illustrator and FreeHand. It can deal with DTP as well as general design. It's fully conversant with CMYK, overprinting and other prepress requirements and can output to PDF and PostScript files and print colour separations.

A wide range of raster and vector effects are available and can be edited in an Object Manager. A separate module, Corel Trace, converts bitmap images into vector shapes. You can create gradient mesh fills like Illustrator's and smart connector lines like FreeHand's. Shapes can be extruded into 3D objects with shared vanishing points, as in FreeHand, but with more lighting and beveling options. Like Illustrator, CorelDraw is scriptable.

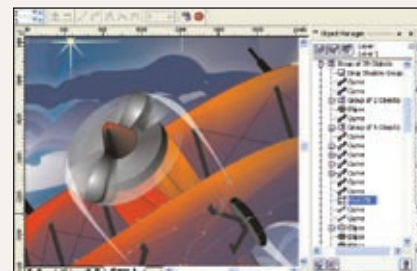
This version offers more. Smart Drawing analyses your freehand squiggles and converts what you actually drew (a mess) into what you meant to draw (usually a square, circle or triangle). Dynamic Guides match their equivalents in Illustrator, making it easy to align objects as you draw them.

In short, CorelDraw seems to be the ideal all-round graphics package – until you use it. A simple task such as creating a named colour and applying it to an object can defeat even the most experienced graphics user, and the onscreen Help rarely provides a meaningful answer. Bezier curve drawing is harder than in Illustrator and FreeHand thanks to a lack of keyboard short cuts, and even selecting objects is frustrating. The user interface feels hopelessly cluttered and options are often duplicated in different locations.

CorelDraw stresses its vast number of import and export formats, but translating complex vector-based content is a tricky business and the results are not always accurate. Exporting a PDF will never be as reliable or customisable as it is from Adobe software, and printers are less likely to be able to supply their job specs in CorelDraw's format.

The new features are not that numerous. As for Smart Draw, it's a solution in search of a problem: it's much quicker and easier to click the Ellipse tool and drag to draw a circle than to rough it out freehand and hope the software recognises it.

What CorelDraw offers over cheaper programs such as Serif DrawPlus 7 is scalability. Once you've worked out how to use it, you won't suddenly run



CorelDraw provides a wide range of raster and vector tools including gradients and mesh fills

up against its limitations when you try something ambitious. Rave is fine for animated or interactive graphics and is easier to learn than Flash. Photo-Paint suffers from the same kind of idiosyncrasies as Draw, but again covers a broad base of functions up to a basic professional level.

As it costs less than Adobe Illustrator alone, CorelDraw Graphics Suite is good enough value to make you overlook its shortcomings. Compared with Adobe Creative Suite 2, it's around half the price, which seems about right.



Plenty of features, including professional essentials such as colour handling



Difficult to master and has a few nasty surprises lurking

**REQUIREMENTS** Windows 2000/XP/Tablet PC, 200MHz Pentium II processor, 256MB RAM, 250MB disk space. **Product code** 735163100372

## REVIEW DRAWING SOFTWARE

# SERIF DrawPlus 7

RATING ★★★★★

PRICE £80 inc VAT

SUPPLIER Serif 08003 767070

DETAILS [www.serif.com](http://www.serif.com)

At around a quarter of the price of CorelDraw, FreeHand and Illustrator, DrawPlus 7 has no right to be as capable as it is. New features include multi-page documents and PDF export. Although there's no professional support for colour management or separation, you can specify CMYK colours and a basic Pantone palette is provided, so you have a fair chance of achieving roughly the intended colour in the final product.

DrawPlus 7 offers a surprisingly large number of the features from more expensive programs. It provides adequate versions of all the standard drawing tools and even a reasonably capable auto-trace function. The Instant 3D feature lets you extrude objects and provides control over rotation, perspective, lighting and bevelling. There's an excellent range of QuickShapes, which are drawn like polygons but range from arrows to speech bubbles and can be altered interactively by dragging control handles – so you might, for example, turn a rippling flag into a humpback bridge. Like CorelDraw, DrawPlus offers both smart connectors and dimension lines. You can also produce frame-based animations and save them as SVG or Flash files.

Impressively, DrawPlus provides a complete range of fill types, including mesh, with a vast selection of useful presets. Not content with this, Serif has also invented its own type of raster effect using bump maps to apply realistic textures to shapes, and it exploits this in dozens of ready-made effects combos. They don't look quite as polished as Illustrator's Graphic Styles, but they're great fun. Transparency is applied as a lens effect, as in CorelDraw and FreeHand, rather than being a property of every object, but it's quite easy to apply and control.

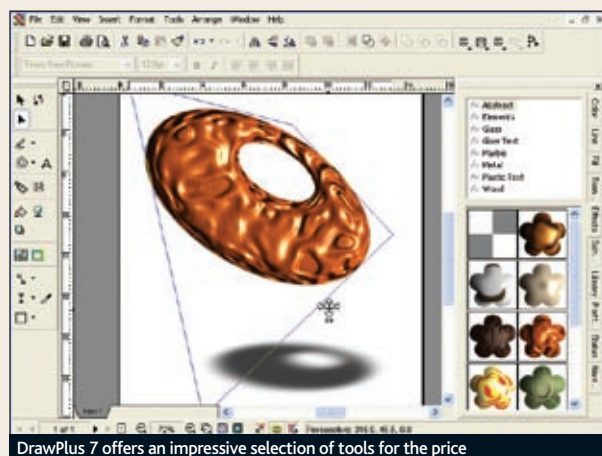
The main limitation is that you can't easily edit the properties of previously drawn objects. Having applied a colour, line, fill or effect combo to an object, any edits you make to that preset are not applied to the object. This means that if you've styled a dozen objects the same way, you have to alter each individually if you change your mind, rather than making a global change. The exception is Scheme Colours, which update globally, although for some reason you're limited to ten of these per document, which is nowhere near enough.

DrawPlus 7 is a great package for home use, business graphics and even dabbling in serious illustration. Until recently, it looked like great value, but Serif will have to watch out for Xara Xtreme.

✓ Solid drawing and layout features with some neat touches

✗ A bit dull and limited by today's standards

**REQUIREMENTS** Windows 98 SE/2000/XP, 600MHz Pentium III processor, 128MB RAM, 100MB disk space. **Product code** FHW1101000







## REVIEW DRAWING SOFTWARE

## XARA Xtreme

RATING ★★★★★

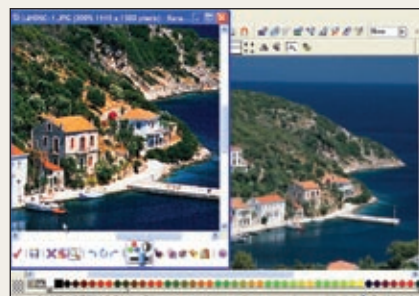
PRICE £50 inc VAT

SUPPLIER [www.xara.com](http://www.xara.com)DETAILS [www.xara.com](http://www.xara.com)

Xara has been through quite a few changes during its life, but this brand new release could be the most significant. We tested a late beta version, but the finished product should be available by the time you read this. It's a unique and remarkable drawing program, but perhaps the most exciting feature is on the outside of the box. Having realised that Xara has the potential to appeal to a much wider pool of users, its makers have slashed the price in half.

Like its predecessors, Xara Xtreme is billed as "the world's fastest drawing program", and it's easy to believe. Compared with rivals the program is amazingly responsive, and it actually takes a few minutes to get used to the fact that you don't have to wait after you make a change or finish dragging an object around. Even the auto-trace function finishes before you realise it's started.

General drawing and manipulation tools are well covered, and bezier editing is less clumsy here than it is in CorelDraw. A few more preset shapes would be useful, but you can do more with polygons by tweaking their stellation and offset interactively to produce petal and pinwheel effects. Transparency is supported using a variation on the lens method adopted by all the programs except Illustrator, and both this and the excellent range of multi-point gradient fills are applied



Xara complements its vector drawing capabilities with a photo enhancement module called Picture Editor

interactively by dragging across an object. Similarly, you can apply a soft shadow to an object simply by dragging away from it with the Shadow tool, which can also generate realistic 'floor' shadows, as if the selected shape were sitting on a horizontal surface. Another clever trick is linked to stretching, which extends one object to match another. For example, when you add text to a web button, the button can grow automatically to accommodate it.

Xara is now compatible with Photoshop plug-ins, which you can apply to objects as raster effects. Quite a few will be supplied, including half a dozen of the legendary Alien Skin effects and selections from Mehdi, Redfield and Xero, and you can add your own from the vast number available elsewhere.

Although you can work only on a single page, this can be set up as a double-page spread. You can export to PDF, and Xara even supports the CMYK TIFF format for graphics used in DTP projects. A consequence of the price drop, however, is that the prepress features previously included, such as separation previews, have been taken out. These are likely to return in a premium version later.

As in DrawPlus, documents can be set up for animation, which means they have frames rather than layers; the results can be exported as Flash or animated GIF. You can add hyperlinks to objects and create image maps, and there's even a dedicated tool for making navigation bars, complete with rollovers.

Unlike DrawPlus, Xara is cleverly designed to help you keep track of colours within your artwork and adjust them globally when required. It's easy to create named colours, apply them to objects and then edit the preset to change all the objects at once. You can also link sets of colours so that altering one changes the rest. This is smarter than the Tint facility in other programs.

What's missing, however, is an object attributes palette, which would enable you to inspect and edit all aspects of an object's appearance and save them for later use. You can copy the basic attributes of one object to another, but there's no direct way of reproducing its total appearance. This in turn means there's no palette of



Making, naming and saving your own colours is easy in Xara Xtreme

instant effects to play with, which would have made the program seem even more accessible.

On the other hand, there are Gallery palettes featuring colours, textures, clip art and more. These are packed with thousands of ready-made items, and you can add more simply by clicking a Get... button that downloads a selection of whatever new content is available online from Xara.

Xara Xtreme comes with Picture Editor, a photo enhancement module that launches when you double-click any image you've imported. This provides basic corrections such as cropping, red-eye removal, brightness, contrast and saturation, plus an interesting bump map (emboss) filter and access to whatever Photoshop plug-ins are installed. It's very neatly presented, and more advanced features are promised for the future.

At this price, Xara Xtreme is almost an obligatory buy even for users with only a passing interest in drawing software. Unless you have a specific reason to choose a more advanced package, it's an excellent way into vector graphics and includes some useful bitmap tools. The company's enthusiasm, together with Xara's thriving community of power users and add-on developers, should help to ensure that anything the program can't do now, it will be able to soon.



Rewarding to use and fantastic value



A few rough edges and missing features compared with pricier rivals

REQUIREMENTS TBA

## BUDGET ALTERNATIVES

There are various ways of getting into vector drawing without shelling out for the programs on test. This field is not well served by freeware, but Serif's DrawPlus 4 is available for free from [www.freeserifsoftware.com](http://www.freeserifsoftware.com). Inkscape ([www.inkscape.org](http://www.inkscape.org)) is an open-source vector editor based on the SVG standard. It's a work in progress but is already quite usable, although it doesn't support animation yet. Mayura Draw ([www.mayura.com](http://www.mayura.com)) is a shareware program that offers basic vector tools for a \$39 (around £22) registration fee. It's different from other drawing

programs – for example, curves are drawn using a spline method rather than bezier – and doesn't have nearly as many features as DrawPlus 4.

CorelDraw Essentials is a dramatically cheaper alternative to Graphics Suite, comprising the previous version (11) of Draw bundled with basic photo enhancement and organising software plus clip art, fonts and templates. At £48 including VAT it sounds like a bargain, but you still face much the same learning curve as you do with CorelDraw 12 and there are a lot of omissions: it has fewer import and export filters, fewer PDF options, no

colour separations or Prepare for Bureau, no auto-trace, no Dynamic Guides or Smart Drawing and no scripting.

If you're a teacher or student, several of the commercial packages are available at lower prices. CorelDraw Graphics Suite 12 Student & Teacher Edition costs around £75 inc VAT; FreeHand MX is around £135 inc VAT to institutions, while Macromedia offers extra low prices to individual students with an Athens ID. Alternatively, you can get the full Adobe Creative Suite 2 Premium for £347 inc VAT.